

**ecology & environment engineering, inc.**

International Specialists in the Environment

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January 22, 2009

*Via: E-Mail*

Ms. Erin Rednour  
Illinois Environmental Protection Agency  
Division of Remediation Management  
Bureau of Land, Mail Code #24  
1021 North Grand Avenue East  
Springfield, Illinois 62794-9276

Re PCP Process Area Analytical Results and Recommendations  
Jennison-Wright Superfund Site  
11090400008-Madison Co.  
Jennison-Wright/Granite City  
Superfund

Dear Ms. Rednour:

On December 11, 2008, Ecology & Environment Engineering, Inc. (EEEI) requested Bodine Environmental Services, Inc. (BEI) to excavate three test trenches in the PCP process area. The test trenches were used to collect soil samples for laboratory analysis in an attempt to determine whether additional soils in the former PCP process area warranted removal. This letter provides the Illinois Environmental Protection Agency (Illinois EPA) with the analytical results and provides a recommendation as to how to proceed.

The three test pits were located approximately 50-, 75-, and 110-feet south of the previous excavation boundary. A soil sample was collected from each test pit at intervals of 8-feet and 15-feet below ground surface. Figure 1 depicts the location of the test pits and the area of previously excavated soils.

**ANALYTICAL RESULTS**

A total of 6 soil samples were submitted to TestAmerica Laboratories for semivolatile organic compound (SVOCs) and dioxin analysis. The laboratory analytical results were then compared to the cleanup objectives (CUOs) established by the Record of Decision for the site. Table 1 provides a summary of the analytical results and a comparison to their CUOs.

In two test pits, only pentachlorophenol (PCP) and dioxin were detected at concentrations above their respective CUOs. For the southern most test pit samples (PCP110), no SVOC or dioxin isomer was detected. It should be noted that while no dioxin isomer was



detected, the method for calculating the TEQ equivalent uses one half the laboratory method detection limit when an isomer is not detected. Therefore, a “non-detect” for a TEQ equivalent is not possible.

PCP was detected at concentrations above its CUO (51,000 micrograms per kilogram [ $\mu\text{g/kg}$ ]) in the 15-foot interval sample collected from test pit PCP50 and the 8-foot interval from PCP75.

For test pits PCP50 and PCP75, the detected dioxin concentrations were at or below the CUO of 1  $\mu\text{g/kg}$  for the samples collected from the 8-foot interval. However, the dioxin CUO was exceeded at both locations in the 15-foot interval samples.

## **RECOMMENDATIONS**

Based on the comparison of the results for PCP and dioxin with their CUOs, excavation of additional soil in the PCP process area is necessary. The southern boundary for the proposed excavation is assumed to extend along the length of contamination, approximately 100 feet. The area of test pit PCP110 will not be included, as PCP and dioxin were not detected in the samples collected from this area.

Using the analytical results from previous soil sampling and test pit samples, the width of the area to be excavated is estimated at 47-feet wide. Figure 1 depicts the surface boundary of the proposed area of excavation showing the approximate dimensions of 47-feet wide by 100-feet long.

Since the analytical soil data provides estimates of contaminant concentrations at various depths, EEEI was able to differentiate whether materials can be used as fill or daily cover at the local landfill, or require disposal as hazardous waste. The following discussion presents how the various excavation depths should be processed.

Under a previous removal action at the site, the top 5 feet of surface soil has already been excavated and backfilled for the proposed remediation area. Therefore, the existing top 5-feet of soil can be excavated, stockpiled and then used as backfill. This equates to approximately 870 in-place cubic yards.

For the 5-foot to 8-foot interval, only PCP was detected at a concentration above its respective CUO. It is proposed that this interval be excavated and shipped to the local landfill for use as daily cover. Therefore, approximately 520 in-place cubic yards of material would be shipped to the landfill.

For the remainder of the soils, dioxin concentrations were detected above its CUO of 1  $\mu\text{g/kg}$ . The local landfill will not accept this material, and the soil must be shipped off-site as hazardous waste for incineration. For this interval, it is assumed that the



excavation will extend to the water table (approximately 18-feet below ground surface), which equates to an approximate volume of 1,740 in-place cubic yards.

Based on current budget estimates, BEI does not have sufficient funding to dispose of the material that will be designated as hazardous waste. In order to continue work efforts at the site, it is recommended that the area be excavated and soils requiring incineration be stockpiled and/or stored on-site until BEI obtains the sufficient funding to dispose of the material.

It should be noted that while there has been some discussion associated with leaving material in place and placing an institutional control on the area, EEEI cannot recommend this course of action. Based on the initial review of the groundwater analytical results from the 2008 field investigation, PCP groundwater concentrations in the area of the former process area have not significantly decreased. Given that the detected concentration of PCP in the soil was as high as 500,000 µg/kg, the soil in this area continues to be a source of the groundwater contamination and warrants the need for additional excavation and disposal.

If you should have any additional comments or questions, please do not hesitate contacting me at 312/578-9243 or by e-mail at [nbrown@ene.com](mailto:nbrown@ene.com).

Sincerely,



Neil J. Brown, P.E.  
Project Manager

Attachments

cc: J. Tanaka (U.S. EPA)  
M. Tierney (U.S. EPA)  
T. McFate (BEI)



**Table 1 Comparison of Cleanup Objectives to Test Pit Results**  
**PCP Process Area**  
**Jennison-Wright Superfund Site**  
**Granite City, Illinois**

Sample ID:	Cleanup Objective	PCP50-8	PCP50-15	PCP75-8	PCP75-15	PCP110-8	PCP110-15
Depth (feet):		8	15	8	15	8	15
Sample Date:		12/11/2008	12/11/2008	12/11/2008	12/11/2008	12/11/2008	12/11/2008
Naphthalene	27,000	7,900	5,500	26,000	11,000	ND	ND
Pentachlorophenol	51,000	47,000	<b>110,000</b>	<b>500,000</b>	27,000	ND	ND
Carbazole	954,000	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	14,000	320	170 J	280 J	99 J	ND	ND
Benzo(b)fluoranthene	22,000	740	350	450	140 J	ND	ND
Benzo(k)fluoranthene	32,000	310	150 J	260 J	77 J	ND	ND
Benzo(a)pyrene	2,000	400	170 J	210 J	82 J	ND	ND
Indeno(1,2,3-cd)pyrene	11,000	480	270	240 J	130 J	ND	ND
Dibenzo(a,h)anthracene	2,000	180 J	86 J	100 J	ND	ND	ND
Dioxin (TEQ equivalent)	1	1.0	<b>1.3</b>	0.7	<b>4.1</b>	0.32	0.26

***Note:** All concentrations are in micrograms per kilograms.*

***Bolded cells present concentrations greater than their CUOs.***

**Key:**

CUO = Cleanup objective

J = Result is less than the reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.

ND = Not detected.



